WHAT IS CLAIMED IS:

1. A catheter assembly, comprising:

a length of non-porous flexible tubing;

a tubular membrane segment attached, to an end of the non-porous flexible tubing and comprised of a porous fiber membrane permeable to drainage or delivery fluid at a fluid flow-rate that is suitable for an intended application, and having a porosity of less than 5 micrometers so as to be impermeable to tissue ingrowth; and

a reinforcement member disposed within the tubular membrane segment.

2. The catheter assembly of claim 1, wherein the fiber membrane is comprised of a polymer.

3. The catheter assembly of claim 2, wherein the polymer is subjected to a phase-inversion process to form the fiber membrane.

4. The catheter assembly of claim 2, wherein the polymer comprises polyether sulfone.

5. The catheter assembly of claim 1, wherein the fluid flow rate of the porous fiber membrane is capable of flows up to 100 milliliters per hour.

6. The catheter assembly of claim 5, wherein the fluid-flow rate of the porous fiber membrane is approximately 20 milliliters per hour.

7. The catheter assembly of claim 1, wherein the porosity of the fiber membrane is within the range of 1 micrometer to 2 micrometers.

8. The catheter assembly of claim 1, wherein the reinforcement member comprises a rigid tube having apertures through a sidewall thereof.

9. The catheter assembly of claim 1, wherein the reinforcement member comprises a woven polymer sleeve.

10. The catheter assembly of claim 1, wherein the reinforcement member comprises a spring.

11. The catheter assembly of claim 10, including a rigid wire associated with the spring.

12. The catheter assembly of claim 1, wherein the tubular membrane segment has a first end attached to an end of the tubing, and a second end attached to a non-porous catheter insertion tip.

13. The catheter assembly of claim 12, wherein an interior end of the tip is formed to fit a catheter introducer.

14. The catheter assembly of claim 12, wherein the tip includes a rounded exterior end.

15. The catheter assembly of claim 12, wherein the end of the tubing is of reduced cross-sectional diameter, and an interior end of the tip is of reduced cross-sectional diameter to facilitate the attachment of the tubular membrane segment and maintain a generally uniform catheter assembly outer diameter.

16. A catheter assembly, comprising:

a length of non-porous flexible tubing;

a tubular membrane segment having a first end attached to an end of the non-porous flexible tubing, the tubular segment comprised of a polymeric porous fiber membrane having a porosity of less than 5 micrometers so as to be impermeable to tissue ingrowth while permeable to drainage or delivery fluid at a flow rate between 5 milliliters to 100 milliliters per hour;

a catheter insertion tip attached to a second end of the tubular membrane segment; and

a reinforcement member disposed within the tubular membrane segment;

wherein the end of the tubing is of reduced cross-sectional diameter, and an interior end of the tip is of reduced cross-sectional diameter to facilitate the attachment of the tubular membrane segment and maintain a generally uniform catheter assembly outer diameter.

17. The catheter assembly of claim 16, wherein the porosity of the tubular membrane is within the range of 1 to 2 micrometers.

18. The catheter assembly of claim 16, wherein the fluid flow rate of the porous fiber membrane is approximately 20 milliliters per hour.

19. The catheter assembly of claim 16, wherein the porous tubular membrane is comprised of polyether sulfone.

20. The catheter assembly of claim 16, wherein an interior end of the tip is formed to fit a catheter introducer and an exterior end of the tip is rounded.

21. The catheter assembly of claim 16, wherein the reinforcement member comprises at least one of: a rigid tube having apertures through a sidewall thereof, a woven polymer sleeve, or a spring.

22. The catheter assembly of claim 21, including a rigid wire associated with the spring.

23. A process for creating an ingrowth preventing indwelling catheter assembly, comprising the steps of:

forming a length of porous fiber membrane tubing having a porosity of less than 5 micrometers so as to be impermeable to tissue ingrowth and having a drainage or delivery fluid-flow rate appropriate for an intended application;

placing a reinforcement member within the porous tubing;

fixing a non-porous tip to a first end of the porous tubing; and

attaching a length of non-porous and flexible tubing to a second end of the porous tubing.

24. The process of claim 23, wherein the forming step comprises the step of using a phase-inversion process to form the porous tubing.

25. The process of claim 24, wherein the phase-inversion process comprises the steps of dissolving a polymer in a first solution, passing the first solution containing the dissolved polymer through an aperture into a coagulation bath chamber filled with a second solution in which the polymer is non-soluble to create a hollow fiber membrane tube.

26. The process of claim 25 wherein the polymer comprises polyether sulfone.

27. The process of claim 25, including the step of controlling at least one of: the concentration of the polymer in the first solution, the flow of the first solution into the chamber of second solution, or temperature, to create a hollow fiber membrane tube having a porosity of less than 5 micrometers.

28. The process of claim 25, wherein the concentration of the polymer in the first solution, the flow of the first solution into the chamber of second solution, or temperature, is controlled to create a hollow fiber membrane tube having a porosity of between 1 and 2 micrometers.

29. The process of claim 23, wherein the placing step includes the step of placing a rigid tube having apertures through sidewalls thereof, a woven polymer sleeve, or a spring, within the porous tube.

30. The process of claim 29, wherein the placing step further includes the step of associating a rigid wire with the spring.

31. The process of claim 27, including the step of forming an interior end of the tip to fit a catheter introducer.

32. The process of claim 23, including the step of forming a shoulder on the non-porous tubing and the tip to maintain a generally uniform catheter assembly outer diameter.

33. The process of claim 23, wherein the porous fiber membrane has a fluid-flow rate of up to 100 milliliters per hour.

34. The process of claim 33, wherein the porous fiber membrane has a fluid flow rate of approximately 20 milliliters per hour.

35. A process for creating an ingrowth preventing indwelling catheter assembly, comprising the steps of:

using a phase-inversion process to form a length of porous fiber membrane tubing, including the steps of dissolving a polymer in a first solution, passing the first solution containing the dissolved polymer through an aperture into a coagulation bath chamber filled with a second solution in

which the polymer is non-soluble to create a hollow fiber membrane tube, and controlling at least one of: the concentration of the polymer in the first solution, the flow of the first solution into the chamber of second solution, or temperature to create a hollow fiber membrane tube having a porosity of less than 5 micrometers so as to be impermeable to tissue ingrowth and have a drainage or delivery fluid flow rate between 5 milliliters and 100 milliliters per hour;

placing a reinforcement member within the porous tubing;

attaching a non-porous tip to a first end of the porous tubing; and

attaching a second end of the porous tubing to an end of a length of non-porous and flexible tubing;

wherein the attachment points of the non-porous tubing end and the tip include a shoulder of decreased cross-sectional diameter to maintain a generally uniform catheter assembly outer diameter.

36. The process of claim 35, wherein the polymer comprises polyether sulfone.

37. The process of claim 35, wherein the concentration of the polymer in the first solution, the flow of the first solution into the chamber of second solution, or temperature is controlled to create a hollow fiber membrane tube having a porosity of between 1 and 2 micrometers.

38. The process of claim 35, wherein the placing step includes placing a rigid tube having apertures through sidewalls thereof, a woven polymer sleeve, or a spring within the porous tube.

39. The process of claim 38, wherein the placing step further includes the step of associating a rigid wire with the spring.

40. The process of claim 35, including the step of forming an interior end of the tip to fit a catheter introducer.